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Amputations and Excisions
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AMPUTATION AND EXCISION OF THE CERVIX UTERI: THEIR INDICATIONS AND METHODS.

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THE terms amputation and excision, as applied to the direct ablation of the cervix uteri, have thus far been used synonymously, and either word may be chosen with propriety to designate the entire removal of a hypertrophied or even subnormal neck, or of any considerable portion thereof. But, as will appear evident when we come to consider certain diseased conditions of this organ,—for example, where a great part of the cervix has already been destroyed, and where comparatively small portions are to be taken away,—the term excision, and not amputation, would denote that surgical process more accurately and intelligently. Hence, in selecting a title for the paper which I have the honor to present, though the two terms are convertible under certain circumstances, yet the employment of both will indicate more definitely the proposed scope of my remarks.

With the successful achievements of Osiander of Göttingen in the first decade of the present century, by which amputation of the cervix uteri, as a warrantable and hopeful surgical procedure, was fairly demonstrated, the probational period in the history of this operation may be said to have virtually ended. Until then, though many leading surgical authorities throughout Europe, but more especially in France, were not unwilling to accept the suggestions of its illustrious originator, Ambrose Paré, yet, in the few

instances in which this operation seems to have been resorted to, we fail to discover any useful or reliable data regarding the conditions demanding it, or the means employed. Under these circumstances, all antiquarian researches touching its struggles for recognition as a legitimate surgical measure, would be profitless to the present inquiry, and would extend my remarks beyond proper limits.

For several years after the introduction, or rather revival, of this operation, Osiander found himself almost its only advocate in Germany; and though he stands credited, by some authorities, with having amputated the cervix nine times with entire success, and by others no less than twenty-three times, his experience seems to have had but little effect in obtaining for it any very general recognition from his countrymen. In this connection it is but proper to remark that, whether on account of personal unreliability, of which defect he was repeatedly and openly charged, or from a spirit of enmity on the part of his cotemporaries, his professional acts, as a whole, and his statements and claims in this particular, were certainly subjected to the most severe criticism; so much so, indeed, that his failures were said to have even exceeded his successes. In France, however, this operation, finding a more congenial soil, was not slow in numbering among its warmest advocates many of the leading surgeons. As to Great Britain, it is worthy of note, and indeed a very remarkable feature in the history of amputation of the cervix, that from the period of its introduction to the publication of Professor Simpson's first case,—during which time the statistics of French and other continental hospitals spoke volumes in its favor, and the periodical literature of the day fairly teemed with reports of successful cases,—no less than thirty-nine years were required to obtain for it a foothold on the English side of the channel. As an item of historical interest, it is also worthy of mention that America, while first in the field as regards Ovariectomy, has an equal claim

to priority in amputation of the cervix over the so-called "mother-country." To Professor J. C. Warren, of Boston, belongs the credit of having been the first surgeon in the United States to perform the latter operation, and the example thus given was soon after followed by Dr. John B. Strahan, of Petersburg, Virginia. The date of Dr. Warren's operation was April 14th, 1829, and that of Dr. Strahan's, September 9th of the same year; just twenty years after the brilliant chirurgical achievements of McDowell, of Kentucky, and eleven years prior to Dr. Simpson's first case of amputation of the cervix.

Subsequent and recent efforts in this direction by American gynecologists are well known; these, as well as the experiences and opinions of a few prominent European authorities, will be referred to hereafter. The purport of my remarks, then, will be to consider, first, what are the diseased or otherwise abnormal conditions of the uterus which call for and warrant a resort to excision of the cervix, entire or partial; and secondly, in what manner and by what operative means are we most likely to insure the immediate safety and subsequent well-being of those whose misfortunes and sufferings may impel them to seek and expect relief at our hands.

To attempt a minute etiological inquiry into the various conditions for which excision of the portio vaginalis uteri is called for, would extend my remarks far beyond the proposed limits of this paper; consequently, while avoiding, as far as possible, minute details in this direction, however important and interesting in a physiological sense, I shall also, for the sake of brevity, pass over many pathological considerations of great moment. In discussing the different methods of operating, I propose to offer such clinical data as may serve to illustrate the means which I deem safest and best, and in doing so must necessarily refer to the indications as presented in individual cases. With a view, also, to avoid tedious and profitless repetition, I shall confine my remarks on the first inquiry to a brief consid-

eration of those states of the uterus which appear to me to demand such surgical measures, being governed mainly by my own experience in each class of cases. In his chapter on "Amputation of the Neck of the Uterus," Dr. Thomas¹ says, "the conditions which ordinarily call for removal of the cervix are the following : —

- " 1. Malignant disease.
- " 2. Great enlargement from cervical hyperplasia.
- " 3. Longitudinal cervical hypertrophy.
- " 4. Conical and projecting cervix.
- " 5. Granular or cystic degeneration of intractable character."

There is, probably, no morbid or abnormal state of the uterus requiring ablation of its neck which may not be classed as to its leading pathological features with one or other of the above conditions ; hence, I propose to notice each in the order herein specified, premising only, that I shall discard for the present all discussion as to the classification and distinctive characteristics of each variety of malignant disease.

For nearly fifty years after its revival by Osiander, few if any of the most zealous advocates of amputation counseled or practiced the operation for other than malignant diseases of the cervix. Even Lisfranc, "that most intrepid leveler of uterine necks,"² though doubtless including in his formidable array of "incipient cancers" many examples of mere inflammatory or other benign engorgements, felt himself constrained to assume, at least, the existence of some heteroplastic formation. Indeed, not only was this limitation universally insisted on, but the very highest authorities, while guardedly, and with apparent reluctance, yielding conditional assent, restricted its adoption to the very narrowest pathological limits. Dr. West, in commenting upon the comparatively few cases even of epithelioma for

¹ *Diseases of Women*, 4th ed., p. 630.

² Duparque, *Functional and Organic Diseases of the Uterus*, Philadelphia, 1837, p. 408.

which he would consider excision of the cervix applicable or justifiable, says, "It is to be feared, however, that the conditions which even in this form of the disease warrant the performance of the operation, are comparatively seldom to be met with, for though for the last twenty years I have been constantly looking out for cases suitable for it, but one instance has come under my observation in which my surgical colleagues have considered it justifiable, and not above two or three more in which in my own opinion it might have been attempted." This statement of Dr. West may be taken as a fair expression of the views and opinions held by the majority of his cotemporaries, or rather by such of them as seemed to entertain no very strong prejudice against the operation. There were others, however, who either utterly rejected "this French gynecological novelty," as I have more than once heard the late Dr. Montgomery style it, or insisted on certain more or less impracticable, if not impossible, conditions as justifying a resort to it. Thus, while one assured us that in his opinion "an operation of this kind is out of the question,"¹ another pronounces it to be "equally cruel and unscientific,"² Dr. Montgomery³ in considering the treatment of "incipient cancer of the womb," says, "I could not recommend it because the operation is a very formidable one, and I know the affections to be curable without it; besides, we have no means of accurately determining whether the taint is really thus isolated, or whether other parts are not already contaminated." Again,⁴ "I feel quite prepared to declare my conviction of its almost universal impracticability, and of its utter inutility, when the disease really exists and is developed." Dr. Churchill⁵ after enumerating the various conditions and stages of development in carcinoma of the uterus in which

¹ Dr. Blundell, *Diseases of Women*, p. 187.

² Dr. Robt. Lee, *Cyclop. Pract. Med.*, vol. iv., p. 397.

³ *Dubl. Jour. Med. Sciences*, Jan. 1842, p. 444.

⁴ *Dubl. Hosp. Reports*, vol. v., p. 456.

⁵ *Diseases of Women*, Am. ed., 1857, p. 311.

the operation of excision must be looked upon as inadmissible, says: "If we could find a case of cancer in which the deposition should be strictly limited to the cervix, without contamination of the neighboring tissues, or deterioration of the general health, but which, nevertheless, presented symptoms justifying our interference, we might be warranted in the attempt. But how exceedingly rare is such a combination! And yet I cannot think the operation justifiable in any other case of cancer uteri than the one just described." Dr. Lever¹ says, "In my opinion it is useless to remove the diseased portion, however favorable the case may be, unless we can remedy the cancerous diathesis which exists in these patients, and which leads to the re-development of the disease in the uterus, or in some other distant organ."

Neither was adverse criticism, nor a doubtful and qualified recognition of ablation of the uterine neck, entire or partial, for malignant diseases, confined to British authorities alone. Many distinguished French, and other continental surgeons, opposed or ridiculed the operation from the very start; while some, who had even resorted to it in the beginning, were disposed subsequently to abandon it, or at least to adopt it less frequently. Duparque,² whose treatise appeared some time before Pauly's³ extraordinary exposé of Lisfranc's exploits, and who therefore could not have been biased on account of the cruel and perhaps not impartial strictures by the editor of the latter's work, says: "The unhappy results depend *immediately* upon the inflammation which is propagated from the uterus to the peritoneum, *mediately* on a relapse of the disease, either because that some parts of the disease may have escaped the operation, or that the limits of the alteration could not be attained by the instrument; or, finally, that the organic

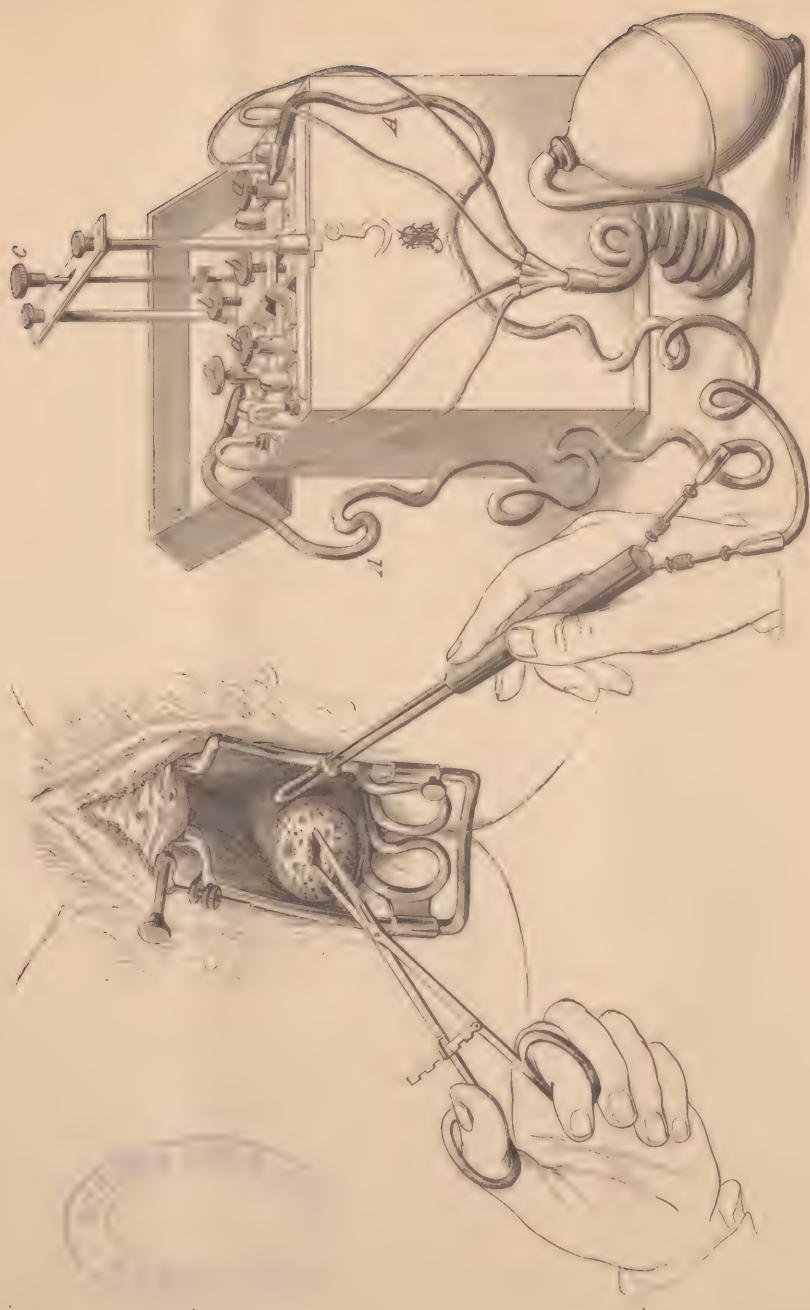
¹ *Prize Essay on Organic Diseases of the Uterus*, Am. ed., p. 209.

² *Loc. cit.*, pp. 420-421.

³ Lisfranc, *Maladies de l'Utérus*, Paris, 1836.

predisposition which influenced the development of the primary affection might create a relapse in parts of the uterus left by the instrument, although they were not involved at the moment of the operation." It will thus be seen that, so far as regards the propriety of removing the cervix by direct surgical means for cancerous formations, even when incipient and circumscribed, neither the heralded successes of Osiander, Récamier, Dupuytren, Velpeau, and others, the alluring statistics of Lisfranc, nor the subsequent daring achievements of the distinguished inventor of the *écraseur*, sufficed to convince many of the very highest authorities, even up to a comparatively recent period. It is hardly necessary to observe, however, that this outspoken distrust of all such surgical procedures, was but a natural consequence of the clinical history of amputation of the cervix during the first twenty-five years of its revival, and cannot, therefore, be viewed in any other light than that of a praiseworthy and conservative recoil from indiscreet zeal and reckless practice on the part of some of its advocates. Be this as it may, I am quite convinced that the dangerous and, at best, imperfect means formerly employed, and, strange to say, even to this day advocated and resorted to by some gynecologists, contributed in no little degree towards creating and fostering this not unreasonable opposition to operations of this character. At the present day there is no author of note, and but few gynecologists who doubt either the propriety or feasibility of excising cancerous outgrowths from the cervix uteri. Indeed, the only question among those who have had much experience in such matters seems to be as to the extent to which operative measures ought to be carried. For example, some believe that when we recognize the existence of suspicious infiltration of the vaginal walls with more or less ulcerative destruction of cervical tissue, and more especially when there exists a strong probability that the disease may have invaded the supra-vaginal parts, operative measures are out of the question. Among this class of

authorities are also found some who still entertain the notion that in all such cases surgical interference of any sort only hastens the final and fatal issue. From these views, and especially the latter, I entirely dissent. In all cases of well-marked cancer of the cervix, however limited its seat apparently, whether the disease be confined to a small portion of one lip only, or the entire circumference of the cervix be involved, there should be no question as to the limits of ablation beyond what a due regard for the safety of the peritoneum and bladder demands. In other words, as much of the cervix as can be safely removed must be taken away ; and should there be in any case good grounds for suspicion that the supra-vaginal portion may also be affected, this, too, should be excised, or otherwise radically treated by appropriate means. Finally, provided operative measures can be devised which will not imperil the patient's life, or render her already pitiable condition still more wretched, all questions and speculations touching cachexia, diathesis, and supposed predisposition to redevelopment, though considerations of importance as affecting prognosis, should never be permitted to stand in the way of our duty to patients in this respect. As regards the class of cases to which I here refer, *i. e.*, cancer in an advanced and incurable stage, and characterized by nocturnal pains, fetid discharges, and repeated hemorrhages, even such cases, or at least many of them, may be amenable to palliative treatment, and should not be utterly abandoned. Indeed, it is neither creditable to our confessedly noble and benevolent calling, nor does it seem to me quite in accordance with the dictates of humanity, — not to speak of our duty in the premises, — to deny the hopeless victims of this fearful malady even a temporary respite from loathsome suffering, because, forsooth, the greater boon, complete restoration to health, cannot be looked for.



GREAT ENLARGEMENT FROM CERVICAL HYPERTROPHY.

These cases are by no means infrequently met with, are readily recognized, and have been graphically and truthfully described by Dr. Thomas,¹ in his able and exhaustive article on "Areolar Hyperplasia." It is almost unnecessary to state here what is already so well known regarding the intractable character of this pathological condition. The best directed treatments, local, as well as constitutional, so far as regards measures ordinarily resorted to, will frequently be found to exert but little curative influence over it, and there are few gynecologists who have not over and over again had their patience thoroughly exhausted in efforts to improve well marked or aggravated cases of this nature. It is true, if women thus affected could be found, whose social condition or mental adaptability to circumstances would permit of long continued and absolute rest, and who would be willing to hazard their general health, or incur the risk of becoming confirmed invalids for the sake of local treatment, — a uterus in this state might often be reduced to normal dimensions. The truth is, however, that in the great majority of cases which we are called upon to treat, an amount of rest not inconsistent with the preservation or improvement of the general health by fresh air and out-door exercise, is almost out of the question. Hence, according to my experience, there is but a very small percentage of all the cases of this malady, more especially those met with in the lower and middle walks of life, ever cured by any treatment however judicious, short of entire or partial excision of the cervix.

LONGITUDINAL CERVICAL HYPERTROPHY.

When this condition exists to any inconvenient or troublesome degree, it is hardly necessary to say that we have no choice in the line of treatment; and the indications

¹ *Diseases of Women*, p. 274.

point to amputation as the only radical and permanent surgical measure.

The *conoidal cervix* to which Dr. Sims¹ more than ten years ago directed attention, as an exceedingly frequent cause of sterility, urgently calls for excision.

Aggravated granular conditions of the cervix, more particularly when the latter is swollen and inflamed, though sometimes curable by repeated free incisions, radiating from the os tinæ outwards, together with frequent hot douches and other appropriate means, will be found, I think, in the majority of cases, more quickly, safely, and permanently disposed of by complete or partial amputation. As to *cystic degeneration*, I can only say that the few cases which have come under my notice, and for the treatment of which I have applied nitrate of silver, iodine, etc., to the cyst cavities, after having opened the same, I am convinced that the welfare and comfort of patients so afflicted will be best accomplished by excising at least that portion of the cervix which is the seat of these formations.

METHODS OF OPERATING.

Previous to 1850, and probably for a few years thereafter, amputation of the cervix was effected exclusively by scissors, bistoury, or other like means. In 1854, however, by the publication of Middeldorpf's researches in galvanocautery, and the introduction of the *écraseur* by Chassaignac, in 1855, two other and rival means were prominently brought to the notice of the profession.

At the present day, therefore, amputation of the cervix may be said to be performed through the agency of one or other of the following means :²—

1. Scissors, scalpel, or bistoury.

¹ *Uterine Surgery*, p. 179 *et seq.*

² It is hardly necessary to observe that many ingenious mechanical devices by Colombat and others have also been tried from time to time, but, being of doubtful practical value, no further notice of them seems called for here.

2. Ecraseur.

3. Galvano-cautery.

The dangers likely to occur from amputation of the neck of the womb by the scissors, bistoury, or other cutting instruments, are (1) hemorrhage, (2) shock, (3) inflammation, and (4), septicemia. Consequently, as no other means may be said to have been resorted to previous to 1850, and as many leading gynecologists, even at the present day, prefer and adopt the same exclusively, comments and opinions expressed by authors from time to time necessarily refer to the records of the operation as thus performed. So far, then, as evidence of this nature can influence the question of danger, it would appear quite conclusive as proving that amputation of the cervix is a very hazardous operation, and one which has been attended and followed by disastrous consequences in the hands of some of the most distinguished surgeons of the present century.

Dr. Churchill,¹ in discussing the various forms and degrees of cancer, with reference to the limits within which amputation might be justifiable, seems to restrict the operation to cases of so-called corroding ulcer, and says: "If there be any case calling for this operation I think this is one; but even here, *so terrible are the consequences*, that it is only the recollection of the inevitable death of the patient which could arm the operator with sufficient courage."

That this adverse opinion or the suggestive warning which it carries with it does not fully accord with the experience of more recent observers, cannot for a moment be doubted; nevertheless, such views were, and are, shared in to such an extent, and by those whose opinions demand the fullest consideration, that no flippant disregard of them should be permitted to influence our judgment materially.

Thus, when the late Professor Montgomery declared that he could not recommend the operation as he considered it "a very formidable one;" when Dr. Blundell felt con-

¹ *Diseases of Women*, p. 311.

strained to look upon operations of this kind as "out of the question;" when Dr. Robert Lee pronounced it "both cruel and unscientific," and when it is well known that Récamier, Velpeau, Dupuytren, and even Osiander felt compelled to abandon it, or resort to it less frequently, mainly because of its great danger, we cannot but believe that these opinions were based on a careful analysis of its clinical history, and that the modified views and practice of the distinguished surgeons referred to, were the result of sad experience.

No doubt much of the opposition to this operation had reference to cases of malignant disease only, and was due, in a great measure, to doubts entertained as to the value of any operative proceeding for such maladies; yet, it is more than probable that the great distrust and change of sentiment arose less from its supposed, or actual, inutility, than its acknowledged fatal tendencies.

In cases of simple hyperplasia, where the constitution is free from taint and the vital powers have not already become impaired or exhausted, hemorrhage to a moderate extent, supposing the same to be always controllable, ought not to be dreaded, nor would it be likely to influence the result to any considerable degree. The disease, under such circumstances, is purely local, and a very large proportion of this class of patients may be said to be strong and healthy in every other respect. Not so, however, as regards the vast majority of those whose maladies are of a nature to call for such operations, and to whom the loss of a few ounces of blood may be so serious as to turn the scale of convalescence very decidedly against them. Indeed, it is more than doubtful if a single example of malignant disease of the cervix uteri, calling for excision, could be met with or imagined in which even a moderate hemorrhage would be desirable and not detrimental. Granting, moreover, that much of the distrust entertained, so far as regards danger from hemorrhage, immediate or secondary, may have been too sweeping and indiscriminate

and applicable to a certain class of cases only, nevertheless, neither the testimony of those who have witnessed such operations by the most expert surgeons, nor well-authenticated clinical facts, would seem to warrant its elimination from the list of risks to be encountered.

It is impossible, therefore, for an impartial inquirer to accept the views of those who, in their zealous advocacy of scissors or scalpel, do not hesitate to declare that, after all, serious loss of blood is but little to be feared. Patients suffering from carcinoma are, surely, not less likely to succumb to frightful hemorrhage or subsequent blood-poisoning than others, and not less prone to dangerous or fatal peritonitis. Pauly states that of nineteen patients operated upon by Lisfranc, four died within twenty-four hours, and out of nine patients operated upon under his own observation, no less than six were attacked with frightful hemorrhage, and three of these six died within twenty-four hours. It is not surprising, then, that this author should have felt compelled to declare that "of all surgical operations the excision of the neck of the womb has hitherto been the most murderous," nor, indeed, can we wonder that Dr. Churchill, with a full knowledge of all these facts, should have deemed it his duty to warn the profession against the danger of an operation so often attended and followed by "fearful consequences." In spite of all this, however, and after careful reflection, I am disposed to believe that the dangers attending excision of the cervix, even by ordinary cutting instruments, though doubtless very great, have been overestimated and exaggerated. Were it otherwise, it would be difficult to account for the encouraging experience of the late Professor Simpson in cases of cancer, and the still more recent and favorable reports of Dr. Isaac E. Tayler's operations for hypertrophic elongation of the cervix ; while on no other hypothesis does it seem possible to reconcile with the foregoing statements and opinions the very remarkable successes of Dr. Sims — namely, one death out of over fifty amputations for conditions other than cancerous.

It is quite probable that a very considerable amount of the good fortune which has attended the efforts of Dr. Sims, in thirty-six of his operations at least, has been due to the fact, that by his improved method of operating, namely, covering the cervical stump by mucous membrane, so as to obtain union by first intention, one, and perhaps the most fatal of the dangers, septicemia, is, if not avoided, at least very much lessened. As to the other sixteen cases, which, it is to be presumed, were operated upon in the usual way, it is to be regretted that we are left to conjecture as to how many may have had "*hair-breadth escapes*" from some one or all of the dangers referred to. Be this as it may, the risks of amputation by knife or scissors, irrespective of the manner of completing the operation, cannot be looked upon as trifling. Dr. Sims, influenced, no doubt, by his own large and exceptionally fortunate experience, thinks that "the risks are few," and in support of this opinion, quotes Lisfranc as having "lost two patients out of ninety-seven," but, from what has already been said, it is hardly necessary to remark that some better authority than the latter, in support of these views, must be cited, before we can believe that they harmonize with the experience of other observers. That Huguier, benefiting and improving by the mishaps and indiscretions of his predecessors, should have operated for median hypertrophy of the cervix thirteen times with success, is doubtless a most encouraging record. I cannot help observing, however, that no reliable or trustworthy data from which rules of practice may be deduced can be reached through statistics so limited. The history of surgery is replete with examples of "runs of luck," as regards special operations, and it is well known that the percentage of success but too often proceeds in an inverse ratio with our number of cases treated.

THE ÉCRASEUR, as a means of amputating the cervix, though often employed some years ago, is, I suspect, but seldom resorted to at the present day. It is claimed to pos-

sess one, and only one advantage over the knife or scissors ; namely, the avoidance of hemorrhage. Without entering at length into the general merits of this instrument, I shall merely state my objections to it in a few words. In the first place, though when properly used, the immediate danger from loss of blood may be avoided, yet it is not, and has not been found to be a certain or universally reliable safeguard against secondary hemorrhage, even in the hands of Chassaignac himself ; secondly, where it is deemed essential that the cervix should be removed close up to the vaginal insertion, there is great danger of opening into the peritoneum posteriorly, even when the stiff wire, and not the more objectionable chain, is used.¹ Thirdly, the wound which it produces is a contused and lacerated one, from which, ere the reparative process has been fully established, there must be danger of septicemia, if not tetanus ; and lastly, the *modus operandi* by which the tissues are severed is, at best, bungling, clumsy, unscientific, and if I may be permitted to use the expression, unsurgical. For these reasons, any such contrivance, however useful for other purposes, ought not, in my opinion, to be employed for amputating the cervix uteri.

ELECTRO-CAUTERY.

In a series of articles published a few years ago, I submitted a synopsis of certain researches and experiments undertaken with a view to improve and simplify such apparatus and devices as might be called for in the practice of electro-thermal surgery. I took occasion then to present a brief outline of my clinical observations in the shape of cases operated upon by this method, hoping thereby to stimulate investigation, and, if possible, to excite a more general interest in what I then considered, and still believe to be, one of the most valuable gifts that physical science has yet bestowed upon conservative surgery. My trifling

¹ Case reported by Dr. Meadows. *Obstetrical Transactions*, London, vol. xi., p. 102.

effort in this direction was not in vain, for I have had the satisfaction of knowing that opinions and predictions then ventured upon have since been accepted and verified by some of the most distinguished gynecologists, not only in this country, but also throughout Europe. Dr. Thomas, whose experience in this method of operating has been quite large, says, "I feel convinced that where the galvano-cautery is obtainable, it should by all means receive the preference over either the scissors or the *écraseur*. After the use of the first of these, hemorrhage of uncontrollable character is apt to occur; and the second not only crushes the tissues, but sometimes draws into the field of amputation surrounding parts. The results of operation after electro-cautery are also much better than after the other methods; septic absorption, with its numerous consequences, and hemorrhage both immediate and remote, being by it very perfectly prevented." That any agent well known to possess features so very remarkable, and of such vital importance, should be tardy of general adoption, is truly surprising. Indeed, the surmises and explanations heretofore offered by way of accounting for this seeming indifference, are so pertinent to the present inquiry as to warrant their repetition here. In expressing my surprise that gynecologists, especially, should have been so slow to appreciate the value of galvano-cautery in their department of surgery, I said, "that this omission arises in a great measure from the want of any reliable guide to a practical study of the subject, there can be little doubt; because, as has already been intimated, any one desiring accurate information, or such definite rules and directions as will enable him to operate successfully by means of the galvano-cautery, will seek such aid in vain among the gynecological records, or other medical literature, of our language at least. The brief allusions met with in standard works on medical electricity and electrolytic surgery, will avail but little in a practical sense, beyond what relates to the ele-

¹ *Diseases of Women*, p. 633.

mentary principles of electro-physics. As for practical hints, and that particular kind of knowledge so needed for conducting important cautery operations, there are but two ways in which such can be obtained : either by being fortunate enough to have repeatedly witnessed and closely observed such operations, or through laborious experimental research, and no trifling pecuniary outlay. It is also reasonable to infer, from what has been said, that many of the unsuccessful attempts to operate by galvano-cautery of which we hear, as for example, when the battery is said to have 'given out' at a critical moment, have been due less to imperfections in the apparatus, than to a want of experience or an inadequate knowledge of electro-physics on the part of the operator. It will be found impossible to construct any galvano-electric apparatus which many not occasionally become defective, either by accidental displacement of some of its parts, or imperfections resulting from use. The well-ascertained laws, also, in accordance with which the electric force is generated and set in motion, demand the strictest observance, and will tolerate no innovations incompatible therewith, either as regards the relation of negative and positive elements to each other, and their metallic connections, or the quantity and kind of fluid or fluids, by the aid of which electro-motive power is to be obtained. Consequently, no surgeon can hope to succeed in the practice of electro-cautery unless, when difficulties arise, as in case of failing to obtain sufficient heat, he is not only competent to fully appreciate and understand the nature, causes, and extent of such interruptions, but also possessed of a certain amount of mechanical aptitude, so as to enable him to remedy the defect. Indeed, I have no hesitation in stating that these conditions are essential to success, and cannot be safely dispensed with ; because, though certain rules may be laid down concerning the general management of batteries, and even specific directions given as to the proper manner of conducting cautery operations, nothing short of a tolerably exact scientific knowledge of

the whole subject will suffice to overcome unavoidable obstacles. Hence it is neither unreasonable to infer that had these facts been earlier recognized, many of the troubles and disappointments reported in the practice of eminent surgeons might have been avoided ; nor would a quarter of a century have elapsed ere galvano-cautery, instead of being understood and practiced by comparatively few, had become the usual, and not the exceptional means by which diseased conditions might be cured or relieved."

My experience in this comparatively new field of surgery covers a period of nearly eight years, and comprises, exclusive of other and minor cases, more than a hundred operations for the removal of the entire lower cervix, or parts thereof. These operations include cancerous degeneration of the uterus in almost every stage and variety, as well as such other pathological or abnormal conditions as usually call for surgical measures of this kind. If, then, my views and conclusions on certain important questions should appear to some as over-positive, and at variance with their own, I trust they will be accepted as the outgrowth of carefully observed facts, and honest conviction, and in no way influenced by preconceived notions or *à priori* speculations.

Before proceeding farther, I deem it but proper to define my position with regard to points about which there would seem to be a difference of opinion, but yet concerning the main features of which those who have had much experience in cautery operations cannot entertain much doubt. It has occasionally been supposed that the hemostatic qualities generally attributed to the galvanic cautery, are not, after all, such as we might look for, and consequently that it is not, strictly speaking, reliable as a safeguard against loss of blood in amputations of the cervix. That objections of this kind should be raised by those possessed of a limited knowledge of the subject, or who may have witnessed such operations unskillfully performed, would be a matter of no great surprise ; and, as time and more ma-

ture experience might, probably, correct the error, neither refutation nor explanation might be required. But when authorities of high reputation, who in their published treatment of such subjects are expected to reflect the opinions of those best informed, either fail to do so, or rely for their statements on faulty data, or preconceived notions, some explanation as to the probable grounds upon which such erroneous views are based, is called for. Professor Schroeder,¹ for example, in his chapter on the treatment of infra-vaginal hypertrophy, says, "I prefer to operate with the knife, because neither the *écraseur* nor Middeldorpff's galvano-caustic apparatus prevents hemorrhage with absolute certainty, and their use excludes the suture, the most reliable hemostatic." I have also heard a prominent member of the New York Obstetrical Society declare, in a discussion of this very subject, that one of "the bloodiest operations he ever witnessed was an amputation of the cervix by galvano-cautery." Indeed, I was myself a spectator at a precisely similar bloody proceeding. Now what is the true and plain explanation of all this? Simply that the wire was over-heated, and the loop, doubtless, contracted too rapidly; in other words, the operator, and not the means employed, was clearly responsible for the accident in each case. What would be said of an awkward, unskillful, or reckless practitioner, who, presuming to operate for strangulated inguinal hernia, carried his incisions not only to, but through the intestine itself? Would it be just to hold the scalpel accountable for such a fatal blunder? And yet, this is precisely the kind of argument resorted to, when we are advised that the electro-cautery in amputation of the cervix "does not prevent hemorrhage with absolute certainty." Besides, if stitches are found to be "the most reliable hemostatic," how happens it that secondary hemorrhage is not so very uncommon after the flap operation? On this question I would merely add that hemorrhage from amputation of a hypertrophied cervix by galvano-cautery,

¹ Ziemssen's *Cyclop.*, vol. x., p. 79.

though I have performed such operations very many times, has never once occurred in my practice, and ought not to take place if due time be allowed for the heated wire to pass through the tissues, and the battery power be regulated and proportioned according to the size of the loop. The time required should be seldom less than ten, and often fifteen minutes. Finally, after removal of the cervix, the stump should be carefully looked at, and in case there should be found any spots imperfectly seared, though there be no bleeding, some suitable instrument brought to a *dull red* heat should be applied, so as still more thoroughly to char the surface. I have never seen but two instances of secondary hemorrhage after amputation of a *non-malignant* hypertrophied cervix, and in each of these cases the accident was due to inexcusable imprudence on the part of the patients.

There is another subject of no little importance, about which there seems to be some difference of opinion; that is, as regards the probability of cicatricial contraction producing obstructive narrowing or even atresia of the uterine canal, being greater after amputation by galvano-cautery than in cases where other means have been employed. On this question my views, already on record, are probably familiar to many members of this Society, and growing experience but tends to strengthen and confirm me in their correctness. That contraction of the entrance to the uterine cavity, even to the extent of complete occlusion, has followed amputation of the cervix by other means than the electro-cautery, and long before, as well as since the introduction of the latter, is not a debatable question at all, but a clinical fact, often observed, and well authenticated. Indeed, though most of the reports of cases operated upon by scissors, bistoury, and *écraseur*, are notably, if not suspiciously silent in regard to matters of this kind, as well as to others of greater moment, one might surmise, and not unreasonably too, that such occurrences ought to be the rule and not the exception. Unfortunately, however, the

statistics of operative surgery are not always infallible guides in matters of detail, as regards the condition of patients subsequent to apparent recovery ; but too often, like those to which M. Pauly has so remorselessly applied his editorial pruning-knife, gotten up more for the sake of heralding certain marvelous chirurgical achievements, than in the interest of scientific progress. Once in a while, we do come across an example of straightforward and honest admission as to the great tendency to contraction after amputation by ordinary cutting instruments ; thus, Dr. Sims, after alluding to the necessity of covering the stump with mucous membrane, says : " There is always some contraction of the os externum after all amputations of the cervix." Also, in at least one of Dr. Simpson's eight cases, we find the patient returning to Edinburgh two years after amputation, to obtain relief on account of " retention of the menstrual secretion from occlusion of the os uteri, consequent on adhesion of the opposed lips." If occlusion of the uterine canal, or even contraction to any noticeable degree, were a frequent occurrence after amputation by electro-cautery, it is not at all likely that Dr. Thomas, who up to three years had excised the cervix by this method over twenty times and " not one bad result had occurred," would have overlooked or failed to mention the fact. Dr. Noeggerath, who has also had a large experience in such matters, has come to the conclusion that cicatricial contractions following excision of the cervix by cautery are rare and exceptional, while I have been able to see but four such cases in all, one in a trifling degree and easily remedied, and the other three, in my opinion, quite manageable had I been afforded an opportunity of rectifying the defect. In all these four cases, occurring as they did in the spring of 1873, and since which time or before I have never been able to observe a single example of the kind, there seemed to be a remarkable coincidence, though the manner of operating and the general management of these patients differed in no

one particular from similar cases treated before and since that time. The first was my thirteenth operation, the second my fifteenth, the third my sixteenth, and the fourth my nineteenth, while all occurred in the space of a few weeks! The first case was believed to be one of carcinoma of an apparently schirrous nature.¹ The patient, aged about thirty-two years, and the mother of six children, the youngest of whom was three years old, had been under treatment for about a year previous to my being called to see her, and though judicious and well-directed measures, local and general, had been steadily persevered in during that time, she not only failed to show any evidence of improvement, but her physical and nervous conditions were such as to render her utterly incapable of attending to her household duties. She was a blonde, stout built, and short of stature, and of that peculiar adipose and flabby make-up usually indicative of defective nutrition, while her whole appearance was suggestive of well-marked cachexia. She also suffered from frequent and severe neuralgic attacks, distressing nocturnal pelvic pains, and other characteristic local and constitutional disturbances. The cervix, which was very much enlarged and indurated towards the vaginal insertion, was exquisitely tender to the touch, and on the livid and fungous looking surface surrounding the os were deep and defined spots of ulceration, giving the whole presenting part a moth-eaten appearance. Amputation by galvano-cautery was performed in the usual manner, February 19th, and the case progressed favorably and without any occurrence worthy of note. May 29th I was requested by her physician to see her with him, as she had then, he said, passed through the third menstrual period since the operation, and had suffered severely from pains characteristic of obstructive dysmenorrhea, though the flow, which lasted some days, had been quite considerable. On examination

¹ Through some oversight this specimen was not submitted to microscopical examination.

the os was found to be represented by a small circular opening at the apex of a conical depression formed by converging bands of cicatricial tissue. On the 31st, two days after, an attempt was made to pass a probe into the cavity of the uterus, and it was found that this instrument was arrested at a distance of about an inch from the point of entrance. Owing to the extreme nervousness of the patient it was deemed advisable to postpone further action then. On the 2d of June, however, I saw her again with a view to enlarge the opening by dilatation or incision, but so unable was she to tolerate a satisfactory examination, that I felt it my duty to postpone for a time further efforts, anesthesia having been attended with peculiarly unpleasant symptoms at the time of the original operation. Besides, over two weeks would elapse ere another period of suffering would come, and I had made up my mind to remove obstructions even though an anesthetic should be needed before the expiration of the above interval. At this juncture, however, my connection with the case ended, and the patient sought, and, I believe, obtained advice and treatment of some kind from a number of physicians of high and low degree, principally the latter. Finally, she was fortunate enough to fall into the hands of one who, fully appreciating the difficulty, adopted proper surgical means for her relief.

The second case was successfully treated by myself, a slight incision and the occasional introduction of the steel dilators being all that was required. The third case was in many respects very similar to the first, and the late Dr. Krackowizer, who was called to see her, relieved her by incision. The fourth case was one which I reported at a late meeting of the N. Y. Obstetrical Society, where I presented the uterus, which had been removed post mortem. The following is its history:—

“Mrs. A., aged 28, married several years, but sterile, had always suffered from dysmenorrhea. She had been treated for ‘inflammation and ulceration of the womb’ by her family physician, at whose request I was called to see her,

and by whom the usual active topical applications were had recourse to without benefit. By digital examination the cervix was found to be very voluminous, and presenting to the touch a fungous sensation, but towards the circumference gradually becoming less spongy, yet uneven and indurated. The whole portio vaginalis seemed to be about one inch and a half in length, and as much transversely, and was exquisitely tender on pressure, or when moved in an upward or lateral direction. On examination by speculum, about one half the cervical extremity was covered by luxuriant granulations, bleeding freely on the most gentle application of the sponge, and gradually fading away towards the circumference, which was livid, glistening, and irregular. The cervical canal, for the space of an inch or thereabouts, freely admitted an ordinary sound; but beyond this point nothing larger than a small probe could be passed, even that with some difficulty, and apparently in a tortuous course, to the extent of three and one quarter inches. The existence of carcinoma was surmised, but whether the conditions above described might have been due in this particular instance to simple inflammatory processes, or malignant disease, seemed to me to be a question of but little practical importance, so far as influencing the treatment. Suffering as she did from obstructive dysmenorrhea during her whole menstrual life, thereby developing, probably, nutritive hypertrophy, and elongation of the cervix long anterior to the inflammatory stage, amputation afforded not alone the only, but a very promising means of permanent relief. This operation was at once proposed, and within a few days performed by galvano-cautery; stenosis of the os internum, should such be afterwards found to exist, could be remedied without difficulty. To the subsequent history of this case I would now call especial attention, as satisfactorily accounting for the condition of parts observable in the specimen exhibited.

“So far as could be seen the case appeared to progress favorably, and the patient enjoyed that immunity from surgi-

cal fever and peritonitis so peculiarly characteristic of electro-cautery operations. Such, however, was the shattered condition of her nervous system from long suffering and the satisfaction that she derived from her already improved physical condition and freedom from pain, that she persistently refused to submit to the necessary inspection of the parts, or any local treatment whatever. The succeeding menstrual period passed with little inconvenience, but the second with more, while the third, then about ten weeks after operation, was ushered in and accompanied throughout with dysmenorrheal symptoms of a more acute and distressing character than at any previous period even before operation. At the urgent solicitation of her medical attendant a physical examination was now assented to, and I was requested to see her with that view. By digital exploration the vaginal canal was found constricted at about its upper third, at this point barely admitting the index finger, and beyond was felt a puckered depression marking the entrance to the uterine cavity. By the aid of a speculum and a broad fenestrated polypus forceps, the circular band of dense tissues which divided the vaginal canal transversely into two unequal parts was slightly stretched and the circular conical depression brought into view. This cup-shaped depression of the cervical stump seemed to be formed by numerous small bands of cicatricial tissue, radiating from the more elevated circumference to the centre, and converging around a minute circular opening. This latter barely admitted a small probe, which, however, having once cleared the cicatrix, passed freely through the upper canal. At this stage of the examination the patient, who I should state, would not consent to the employment of an anesthetic, became so nervously restive that any attempt to undo the mischief caused by her own folly was out of the question, and all subsequent appeals and assurances of success being offered in vain, my connection with the case practically ceased. About three years and a half subsequently I was

invited to attend the post mortem examination. The



uterus, though a large portion had been removed, was still much larger than normal, and its interior divided into two cavities,—the upper and larger one that of the body proper, and the lower embracing that part of the cervix which was bounded above by the os internum and below by an opening so small that a probe was passed from below upward with some difficulty, but less

so when introduced from within. (In the diagram the constricted external os does not appear, being situated within the gaping canal representing the circular contraction of the upper third of the vagina).

“It is proper here to state, that though she died from an acute attack of general peritonitis, her medical attendants, Drs. George K. Smith and Van Harlingen, did not consider menstruation in the light of a direct cause, the final appearance of the latter function having passed over with no more than the usual amount of pain and difficulty, ten days previous to her fatal attack. In my remarks on this case I submitted certain propositions expressive of my views, and which I here repeat, namely, 1st. ‘That cicatricial contractions and uterine stenosis are conditions rarely observed to follow, and never, strictly speaking, as direct consequences of, amputation of the cervix uteri by the electric cautery *per se*.’ 2d. ‘That these very troublesome and anomalous states are much less likely to follow amputation of the cervix by this than by any of the other ordinary but infinitely more dangerous methods.’ 3d. ‘That when such difficulties do occur, they are to be considered as due to circumstances and conditions controllable for the most part, wholly independent of the means employed, and calculated in an equal degree to influence the result of any such surgical proceeding, by whatever means conducted.’

Moreover, as there ought to be no hesitation in deciding between danger to life and these comparatively trifling and remediable drawbacks, I would also submit for consideration a fourth proposition, namely, 'That if constriction of the os uteri and cicatricial puckering in the immediate vicinity, were the usual and almost constant results of excision by cautery, and not, as we know them to be, rare and exceptional conditions, still this method would be greatly preferable to all others.' As to the foregoing case I would furthermore remark, that the question is not whether cicatricial deformities after excision of the cervix uteri through the agency of the electric cautery, and serious disturbances and obstructions to menstruation consequent thereon, do or do not occur, for the specimen before us is affirmative evidence of the fact, so that we know and freely admit that such conditions can and do occasionally supervene. But if, in a large experience of many years with this particular agent, both in hospital and private practice, during which in every intra-vaginal operation where it could be judiciously substituted for the knife, scissors, 'vitality modifying' escharotics or strong caustic applications, I have employed the electric cautery, and carefully observed its effects; if, in nearly fifty amputations of the cervix by this method, for *non-malignant disease alone*, mainly hypertrophy, I have noticed but four with results such as are observed in the above specimen; and finally, if to this I add the statement that the clinical history of that one case, as here given, would apply, in all its main features, to either or all four, I cannot look upon such experience in any other light than that of positive and convincing proof that my conclusions are correct. I am well aware, that when a case of this nature is to be investigated we are confronted, at the very outset, in our search after causal connections, with two prominent and startling circumstances, namely, the operation by galvano-cautery, and the specimen before us. It is needless to say, however, that if we proceed to reason from such disjointed materials, a single occurrence and an iso-

lated fact ; if, in any case the first and final links only in a long chain of clinical testimony are to constitute the sole basis of our reasoning, though once in a while and by the merest accident our inference may happen to be correct, the chances are infinitely greater that any conclusions or opinions so reached will be absurd and untenable.”¹

There is but one other matter to which I desire to call attention, namely, the prognosis in carcinomatous affections of the cervix, especially as regards the extent to which it may be influenced by the surgical means employed. It has already been stated, that in addition to the more immediate dangers attending these operations, the well-known liability to a more rapid re-development of the disease in consequence thereof, has always been used as a strong argument against the utility of all operative measures. On this important question Dr. Lever but reiterates the opinions of most authors, even of the present day, when he says, “ Unless there is a line of healthy tissue between the diseased portions to be removed, and the body of the uterus, the disease will most certainly return within a short space of time.” Again, he says, “ It is useless to remove the diseased portion, however favorable the case may be, unless we can remedy the cancerous diathesis which exists in these patients, and which leads to the re-development of the disease in the uterus, or in some other distant organ.”

¹ Though, as Dr. Sims states, some contraction may follow all cases of amputation of the cervix, yet it is quite astonishing to find how few instances of this nature have been published or even referred to by authors. For this, if for no other reason, the following reference to one of Sir J. Y. Simpson's cases, in which, it is hardly necessary to say, galvano cautery was not employed, may be of interest. “ The patient has returned lately to Edinburgh, and is now under treatment for retention of the menstrual secretion from occlusion of the os uteri, consequent on adhesion of the opposed lips after amputation. Dr. Simpson has made an incision into the cavity of the uterus through the cicatrized cervix, and allowed a quantity of thick retained menstrual fluid to escape.” *Simpson's Obst. Works* (Note by Editor), vol. i., p. 180.

In support of this objection, the statistics of cancer have been appealed to, over and over again, and though statistics may be made wonderfully adaptive to views the most diverse, there cannot, I imagine, be any doubt as to the correctness of this opinion, based as it is upon the results of operations performed by means other than the electric cautery. But, as I have elsewhere stated, there is no similarity in the conditions and subsequent behavior of parts from which portions have been excised by the electric cautery, and that of tissue otherwise severed. The modifying influences, perhaps destructive effects on morbid deposits and infiltrations, are not limited merely to the surface over which the heated wire or other cauterizing device has passed, but extend to tissues subjacent, and probably to a very considerable distance beyond. Hence, it is by no means an uncommon occurrence in my experience to observe cases of an utterly hopeless character, where life has been prolonged in comparative comfort, through the instrumentality of the curette and subsequent thorough cauterization. For these reasons, I am constrained to believe that, in all cases where the heated wire may be made to pass even a little below the line of demarcation between diseased and healthy structures, a radical cure may be looked for, if the stump be well and deeply cauterized subsequently. It seems to me quite probable, therefore, that certain doctrines and opinions regarding an increased tendency to the recurrence of cancer in parts operated upon, have no application whatever to organs and tissues subjected to the influence of the electric cautery. Indeed, not only as regards the extent to which a womb may be invaded by the disease, but also certain constitutional defects, supposed heretofore to contra-indicate all operative measures, I cannot help remarking, that I have repeatedly had good reason to think that such objections have been overestimated and should now be confined within narrower limits. Thus, in cases of advanced cancer, where much of the cervix, sometimes almost the entire portio vaginalis, and even beyond, is

found to be destroyed, by a bold, yet careful and judicious use of the electric cautery an apparently complete arrest of the local disease for many years, and an entire disappearance of all constitutional disturbances, may be considered as also quite possible. (See Case II. page 32.) Furthermore, if added to extensive destruction of the cervix, there should be found spots of cancerous infiltration on the vaginal walls, even such a case, though not an encouraging one by any means, should not be abandoned; for the patient may obtain through the same agency a long respite from the ravages of this loathsome malady. (See Case VI. page 40.) In conclusion, I have only to say that of all the means and methods thus far suggested or resorted to for amputations and excisions of the cervix uteri, whatever the conditions indicating or warranting the same may be, galvano-cautery will be found to be infinitely the safest, and in the case of cancer particularly, by far the most thorough and radically curative in its tendency. So far, therefore, as regards the choice of methods, I cannot better record my conviction than in the words of our distinguished associate, Dr. Thomas, when, in pronouncing in favor of the electric cautery, he says, "Incomparably the best and safest means of doing this is by the galvano-cautery, and unless very urgent reasons dictate a resort to the *écraseur* or scissors, should always be resorted to." And again he says, "He who, in place of doing so, performs the operation by other methods, should reflect that he is unquestionably lessening his patient's chances for life."

The following cases, transcribed for the most part, and for obvious reasons, from the records of my *earlier* operations, may be found to present some points of practical interest.

As regards their selection, it is hardly necessary to observe that I am influenced, not by a desire to herald successes, of which the few here submitted constitute but a small portion, nor is it to be supposed that I have not come across cases less encouraging, over and over again; but

simply because, while they may serve to indicate the data on which certain views and opinions set forth in this paper are based, they will also explain the *modus operandi* by which I am in the habit of treating such cases.

CASE I. — *Epithelioma of the Posterior Lip of the Uterus in a Lady of Undoubted Hereditary Cancerous Predisposition. Excision by Galvano-cautery over Seven Years ago. Perfect Health up to the Date of the Present Report.* — Mrs. A., aged 48, multipara, had always enjoyed the best of health up to July, 1869, at which time my attention was first called to her case. She complained of great back-ache and bearing down sensations, and had for some time noticed discharges of mucus occasionally mixed with blood. Menstruation had always been regular and normal in character. By digital examination the posterior lip of the uterus was found to be much enlarged, indurated, and tender to touch. On inspection by the speculum there was found a slightly elevated and velvety-looking surface stripped of epithelium, covering at least one half of the posterior lip. The anterior half though somewhat swollen, was soft, less tender, and paler.

The local treatment consisted in warm vaginal douching, and the application of iodo-glycerine to the diseased parts, once, and sometimes twice, a week.

A marked improvement was noticeable after a few weeks of this treatment, and hopes were entertained that it might be permanent.

On November 9 I was requested to see her again, when she stated that her old pains and other disagreeable symptoms had lately returned, and in a much more severe degree. There was also this peculiarity, she said, about her sufferings, that she was seized at about 4 or 5 o'clock every morning with severe lumbar and hypogastric pains, which lasted up to 9 or 10, but that after the latter hour she felt relieved and continued comfortable until about the same time the succeeding morning.

A speculum examination now revealed a condition of the

cervix similar to that earlier recorded, and active topical measures were once more resorted to, but on this occasion with no improvement whatever. The disease, for some time suspected, was diagnosticated as epithelioma, for the following, among other reasons: 1st. The hereditary predisposition existed in a marked degree, and of which important fact I had some personal knowledge; and 2d, the disease had resisted such treatment, constitutional as well as local, as was well calculated to improve, if not to cure, an ailment less serious.

About this time (December, 1869) Dr. Noeggerath exhibited at a meeting of the New York Obstetrical Society, a specimen of epithelioma removed from the cervix uteri by galvano-cautery, and its resemblance to what I had observed in my own patient induced me to request a consultation with Dr. N. This having been assented to, and my diagnosis concurred in, it was decided to excise the diseased part by galvano-cautery, and the operation was performed on the 4th of January, 1870. The part removed embraced the entire vaginal portion of the posterior lip. In two weeks the patient was up and about, and in less than a month the parts were entirely healed.

She has safely passed the menopause, and is now (April, 1877) in perfect health.

CASE II. — *Ulcerating Cancer of the Entire Cervix. Excision and Destruction of the Diseased Parts by Galvano-cautery. Complete Cure. No Return of the Disease in Six Years.* — About the 1st of July, 1871, I was requested by Dr. George K. Smith to see Mrs. —, aged 47, the mother of three children, the youngest being ten years old. Previous to three years ago menstruation had always been regular; but since then and up to within the last fifteen months, symptoms such as usually usher in the climacteric period were observed. The catamenia now, and for over a year past, had lost all the character of periodicity, and metrorrhagic hemorrhages had reduced her to a perfectly helpless condition. Her nocturnal pains were almost in-

tolerable; emaciation had taken place to a very remarkable degree, and her anxious, care-worn, cachectic expression might alone have sufficed to indicate the nature of her malady.

By a digital examination, the cervix uteri was found much enlarged and irregularly indurated. The cervical canal was open to the extent of admitting an inch of the index finger, while the surrounding tissues, as far as could be reached within the neck, were unyielding, extremely tender to the touch, and bled freely on the slightest provocation. The depth of uterus was three inches.

Owing to the absence of any circular line of depression at the utero-vaginal point of convergence, it was found impossible to apply the cautery loop in such a manner as to include more than a small portion of the diseased structures.

This difficulty, though not encountered before, had, nevertheless, been fully considered as one of the many contingencies likely to arise, and therefore, being anticipated, was provided for.

The patient having been anesthetized, no trouble was found in bringing the diseased part into view, and, by the aid of my speculum, ample space was afforded for any manipulation required.

The gentlemen present at this operation were Drs. G. K. Smith, Skene, Dwyer, and Bedell. The cervix was seized by a vulsellum held in the left hand, while with the cautery-knife¹ the cervix was slowly severed and removed without loss of blood. The same instrument, only more curved by being bent, was now applied to the deeper tissues of the cervix, which, while drawn down by a tenaculum, were cautiously sliced off piece by piece, laterally as well as upward, to the utmost extent deemed safe.

When the parts had been thus scooped out, a deep bell-shaped cavity was left, from the bottom of which to the

¹ The knife should be got into position before heating.

fundus uteri measured little over half an inch. No hemorrhage occurred during the whole operation.¹

The recovery of this patient was no less rapid than remarkable, and unattended by any inflammatory, febrile, or other complications. Health is at present perfect.

CASE III. — *Carcinoma of the Cervix complicated with Pulmonary Tuberculosis. Amputation by Galvano-cautery. Complete Recovery for Two Years and Six Months. Death from Rapid Destruction of the Lungs Three Years after the Operation, without Reappearance of the Cancer.* — Mrs. H., aged 30, had had one child and two miscarriages; she applied for advice to the out-door department of St. Mary's Hospital in June, 1871. Menstruation had been regular up to six months before this date, but since then she had suffered from menorrhagia, sometimes excessive, but always prolonged with shooting pains in the sacral and inguinal regions, and throbbing sensations in the vagina. She appeared much debilitated, and a physical examination of the chest showed tubercular deposits in both lungs.

On making a digital examination per vaginam, the cervix uteri was found much tumefied, tender on pressure, and irregularly indurated.

The cervical canal, in its inferior half, though open, admitted the sound with difficulty, and its most careful introduction was followed by much bleeding. The depth of the uterus was three inches. By the topical application of a strong solution of iodine, and the use of quinine, iron, and cod-liver oil, the size of the cervix and its hardness seemed to lessen, while her general condition improved in a proportionate degree for a time, so that treatment was abandoned. On October 4th she presented herself again, owing to a return of her original symptoms, and on a careful examination her condition was found to be very similar to that first observed, and the uterine cervix much more enlarged and

¹ A microscopical examination showed cancer-cells and free nuclei in abundance.

indurated. It was now decided to try the effect of actual cautery on the cervical canal as far up as the os internum, and also around the os tincae, in the hope of creating healthy action by such active means and perhaps relieving congestion by producing a drain. At the end of a month the local condition seemed much better, and for two menstrual periods following this last treatment she had no menorrhagia, and her general health appeared to improve.

This improvement, however, was but temporary, for she once more, on the 25th of January, reported herself as feeling much worse than ever, and an examination fully confirmed the truth of her suspicions. She stated that she had been flowing for two weeks continuously, as was very evident from her anemic look, and on examination the diseased parts presented a much more tumefied and inflamed appearance than on any previous occasion.

It was now decided to remove the whole cervix by galvano-cautery. The condition of her lungs rendering the administration of an anesthetic of doubtful propriety, and it being also desirable to ascertain the amount and extent of pain attending such operations, she was induced to forego etherization. The operation may be described as follows: The uterus having been brought into view and steadied by means of my speculum, the cervix was seized with a vulsellum, and the cautery-knife, before being heated, applied posteriorly, the blade directed transversely and its edge looking upward and forward. The battery being now immersed, the knife was carried completely around the circumference of the cervix close to its vaginal insertion. In this manner a deep and somewhat oblique groove was made, which served as a bed for the loop. The latter was now made to embrace the cervix still held in the grasp of the vulsellum, the battery again immersed, and some traction being made during the passage of the heated wire through the tissues, the operation was completed. When the cervix was removed, what remained of the uterus was deeply concave, and its cavity measured less than one inch and a half.

There was no hemorrhage during or subsequent to the operation, and, what is of some consequence to know, she declared that the pain experienced during this operation was no greater than she had suffered repeatedly before, when any active topical application was made.

May 16. Menstruation has appeared twice since the operation, lasting each time four days, and without the slightest inconvenience or tendency to hemorrhage. She has gained flesh, is free from pain, and expresses herself as feeling entirely well. By a careful examination, no trace whatever of disease can be recognized by sight or touch.

A microscopical examination of the excised part gave abundant evidence of carcinomatous disease.

For two years and a half this patient enjoyed the best of health, but owing to exposure to cold she was taken with congestion of the lungs and hemorrhage, followed by rapid consumption, from which she died about three years after the operation. It is worthy of remark, however, that up to the time of her death there was no return whatever of uterine disease.

CASE IV. — Vegetating Cancer of the Cervix. Removal by the Écraseur, and Rapid Reappearance of the Disease. Second Operation by Galvano-cautery. No Return of the Disease. Patient now in Perfect Health. Time over Five Years. — On the 11th of February, 1872, I was requested by Dr. J. Marion Sims to operate by galvano-cautery in the case of a lady whose history is as follows : Mrs. —, aged fifty, is of healthy ancestry on her father's side, but several members of her mother's family have died from pulmonary affections, and one, an aunt, from cancer of the breast. Menstruation commenced at fourteen and has always been regular up to February, 1871. She has had seven children, and a premature confinement in 1856, from which she recovered speedily. From February, 1871, until August, the catamenia were absent, but in the latter month she had a profuse metrorrhagia lasting for several days, and returning more copiously three weeks later.

On examination per vaginam, a tumor about the size of a hen's egg was found springing from the cervix and projecting into the vagina; the canal of the uterus was of normal depth; the body was not hypertrophied. This tumor was removed by the *écraseur* on September 23, 1871, and presented under the microscope the characteristic appearances of epithelial cancer. The patient seemed to improve in some respects until about the first of January, 1872, when hemorrhage returned and large quantities of blood were lost throughout that whole month.

Dr. Sims saw her on the 10th of February and discovered a large cauliflower tumor springing from the cervix and completely filling the upper half of the vagina. The following day, February 11, was appointed for its removal, but Dr. Sims having accidentally sprained his ankle while stepping out of his carriage, requested me to see her and operate for him. The patient was found to be in a very exhausted condition from loss of blood and emaciated to so remarkable a degree that grave doubts were entertained as to the propriety of operating or risking the administration of any anesthetic.

In such a state of things, however, some interference seemed urgently demanded, and ether having been administered, the operation was performed in the following manner:—

The platina loop was with considerable difficulty made to embrace *the upper circumference of the cervix*, and when *moderately tightened* the battery was immersed; little or no contraction of the loop being effected for a few seconds, so that the superficial tissues of the part to be cut might be thoroughly cauterized. When the wire was supposed to have entered the tissues a quarter of an inch or thereabouts, firm and steady traction was made on the tumor by means of a vulsellum, and its connections *very slowly* severed by a further tightening of the loop. By this maneuver the surface from which the tumor had been removed presented a deeply concave appearance, and there was no hemorrhage whatever. The uterine cavity meas-

ured about one inch from the bottom of the wound. No topical application was made.

As this patient resided some miles from the city, I had no opportunity of observing her subsequent progress ; but one of the gentlemen who assisted at the operation, Dr. Nichol, informed me some days after, when he called to see her, that her condition was very precarious. Towards the end of May, having occasion to visit her neighborhood, I called to see her, and found her going about and able to superintend her household affairs.

This patient is now (May, 1877) in excellent health.

CASE V.—*Encephaloid Cancer involving the Entire Uterus and the Vaginal Walls. A Palliative Operation by the Curette and Galvano-cautery. Total Arrest of the Hemorrhage and the Offensive Discharges, and Remarkable Improvement, General as well as Local.*—Mrs. —, widow, aged thirty, has two children, and always enjoyed perfect health until some time in the month of January last. About this time menstruation, previously regular, appeared in great excess and lasted over eight days. This was followed by a copious watery discharge for two weeks, when metrorrhagia again appeared and hemorrhage on the latter occasion continued for ten days. A watery and whitish discharge, as in the previous interval, continued up to the first week in March, when, after a hard day's work as chambermaid in a hotel, she was seized with violent expulsive pains, and almost fatal hemorrhage. She cannot remember how long the flooding lasted then, but on its ceasing she applied for admission and was received into one of the New York hospitals, where she remained for a few weeks without having had anything done for her. On Friday, the 10th of May, she applied at the College of Physicians and Surgeons in Twenty-third Street, and was examined by Professor Thomas, who at once discovered extensive carcinoma of the uterus, involving the vaginal walls anteriorly and posteriorly, and accordingly pronounced her case as utterly hopeless, which it certainly was. Under these

circumstances she applied for admission to St. Mary's Hospital, May 13, 1872, with a letter from Dr. Charles. S. Ward, who stated that he recommended the patient to see me, in hopes that I might be able to do something towards relieving her temporarily by the galvano-cautery.

When admitted, she said she had not ceased flowing for several days past, and her wretched and bloodless countenance bore fearful testimony to the truth of this statement, for she was unable to move one step without support, and it was found necessary to administer stimulants freely before she could be safely removed to bed.

By digital examination I found the condition precisely as Dr. Ward had stated, and as the loss of blood was frightful, nothing could then be done beyond tamponing the vagina. This succeeded in arresting the hemorrhage; but on its being removed the following day it was evident that something of the kind would again be necessary, and a fresh tampon was applied. This latter was allowed to remain forty-eight hours, and its removal not being followed by any return of hemorrhage, I decided to try what could be done by the cautery at the earliest possible moment.

The operation, which took place on Saturday, May 18 may be described as follows: The upper half of the vagina being packed with a large encephaloid-looking mass adherent on all sides, it was found impossible to loop more than a portion of it, so that after removing all that could be taken in this way a much larger proportion yet remained. The soft brain-like character of the outgrowth preventing the heated wire from acting as a hemostatic, considerable blood was lost, and it was therefore determined to complete the operation as quickly as possible. This was done by grasping the more projecting parts of the mass by a strong polypus forceps and forcibly tearing them away piece by piece, until the greater part of the spongy excrescence was twisted off from the uterine cavity as well as from the vagina. The cautery-knife was employed to trim off and scoop out whatever remained, and the dome-shaped cau-

terizer thoroughly applied to the whole subjacent surface. It was now found that the hemorrhage had entirely ceased, but, as a security, the uterine cavity and vagina were carefully tamponed and the patient put to bed.

Her daily record for the succeeding two weeks contains nothing of sufficient importance to warrant minute details. The tampon was removed forty-eight hours after the operation, and no hemorrhage whatever appearing, the vagina was ordered to be washed out twice daily with a mixture of carbolic acid, glycerine, and water.

No peritoneal or other inflammatory trouble followed this operation, and very many of her former pains and distressing symptoms were entirely relieved. Her appetite and sleep returned, and in three weeks she was strong enough to sit up and walk through the ward.

The purulent discharge following the use of the cautery continued for fifteen days, after which appeared a slight, serous-looking, but yet entirely inodorous discharge.

On June 15, the parts operated upon were carefully examined and found to be smooth, but uneven and somewhat hard to the touch, yet, as far as the eye could reach, they seemed to be covered with some kind of membrane, and manipulation provoked no hemorrhage. A steady improvement had been observed in her appearance from day to day, so that feeling comparatively strong and being anxious to visit her friends, she was permitted to leave the hospital. I regret to add that I have never since been able to trace her whereabouts.

CASE VI. — *Ulcerating Cancer of the Entire Cervix, extending to the Body of the Uterus, and to the Vaginal Walls. Operation by the Curette and Galvano-cautery. No Return of the Disease up to the Date of the Report, May, 1877, over Two Years.* — Mrs. M., aged 54, has had four children and no miscarriages; last confinement eighteen years ago. Menstruation appeared at seventeen, and was always regular except during gestation or nursing.

About five years ago "change of life" occurred without

any noticeable local, and but little nervous disturbance. She thinks several relatives of her mother were affected with womb disease, and knows of one aunt having died from cancer.

Two years ago (three years after cessation of the catamenia) she had a slight bloody flow lasting several days, but unattended by pain or other inconvenience.

Within a few weeks thereafter, however, she was seized with severe pelvic pains, when a recurrence of the flow, to a much greater extent and more protracted than on the former occasion, took place.

From this latter period to the present time, March 20, 1875, she has been steadily losing flesh and strength; frequent and copious hemorrhages, offensive watery discharges, and constantly recurring nocturnal pains, have now reduced her to an almost helpless condition. The cachexia is so well marked as to indicate clearly the source and nature of her suffering, and her friends have long since ceased to seek or hope for much benefit from medical or surgical treatment.

On examination the cervix was found to be swollen, indurated, and in the centre, surrounding the os tincæ to the extent of a quarter dollar, deeply excavated, and bleeding on the slightest touch. The uterine cavity measured three and a half inches, and from the feeling conveyed by the sound, it was quite evident that not only the upper part of the cervix, but most probably the body of the organ, was involved. The vaginal walls were here and there studded with hard tubercles of unquestionably cancerous deposit.

A considerable loss of blood attended this examination.

Operation. — April 5th. The patient's condition having undergone some improvement by rest, local styptics, and nourishment, the following operative proceedings were resorted to:—

The uterus having been brought into view by the aid of my large-sized operating speculum, and the perineal blade depressed so as to afford space for manipulation, the diverg-

ing vulsellum was passed well up the cervical canal and opened to an extent sufficient to insure a firm grasp of the cervix. The uterus was now drawn down as far as its limited mobility would permit, and the instrument passed to the left hand, by which it was steadily held in position. (See Cut.) With the cautery knife in the right hand a circular fissure *close up to the vaginal insertion* was next made, for the reception of the platinum loop. This latter was now passed *over* the fenestrated extremity of the vulsellum, and when imbedded in the furrow prepared for it, was tightened and properly secured in the cautery *écraseur*. A connection with two cells of the battery (one half) being now effected, the cervix was slowly severed and lifted out. The stump, as is usual, being cupped, and its circumference elevated, there was no difficulty in again securing the uterus with the instrument first used, and, while an assistant aided in steadying the organ by pressure above the pubes, a small-sized curette was passed within the cavity, and what remained of the cervical canal and a little beyond was now thoroughly scraped out. Sufficient space having thus been made for another instrument of a like kind, but having a larger area of cutting edge, the interior was again gone over, so as to remove or destroy all softened and diseased tissues with which it might come in contact. The amount of blood lost during the entire proceeding was quite inconsiderable. The cavity was now sponged out carefully, and a tampon soaked in acetic acid and tannin applied for a few minutes, so as to prepare the part for the next and perhaps the most important step of the operation. A dome-shaped cautery instrument, brought to *a cherry-red heat*, was now applied to the excavation in every part, and, when withdrawn, the cavity was sponged and dried, and again cauterized until the parts were completely charred.

Lastly, the indurated nodules on the vaginal walls were each thoroughly destroyed by the cautery, and, the uterus and vagina having been tamponed, the patient was removed to bed, and an anodyne rectal suppository ordered.

. A detailed report of this patient's progress, from day to day, may be omitted. Twenty-four hours after the operation she felt quite comfortable, free from pain, and had but little, if any, hypogastric tenderness. There were no marked evidences of febrile disturbance, and no pelvic inflammation during her whole convalescence. From the fourth day after operation there were copious discharges of pus and tissue debris, the former continuing, though gradually declining, for four weeks. At the expiration of the fifth week, all discharge having ceased, and the patient feeling quite well, a careful examination was made, and the parts were found to be entirely healed and covered with apparently healthy membrane. A sound was passed through the puckered entrance to the cavity of the uterus without the slightest pain, and, when withdrawn, no appearance of blood was observed.

In accordance with strict injunctions at the time of her discharge from hospital, this patient has quite frequently called for examination, and when last seen on April 14th, two years after operation, no trace of a return of her disease could be found, and her general health was excellent.

CASE VII. — *Non-malignant Hypertrophy (Hyperplasia) of the Cervix complicated with Procidentia and Cystocele. Amputation by Galvano-cautery resulting in Permanent Elevation of the Uterus.* — Mrs. —, aged 35, has had five children, the youngest three and one half years ago, and one miscarriage about three years previous to my seeing her, which was on December 16, 1870. She complained of severe and constant back-ache, bearing-down pains, leucorrhea, and vesical tenesmus. Menstruation was regular, though somewhat painful, and occasionally in the intervals there was more or less muco-sanguineous discharge, especially after long standing or fatiguing exercise. On examination per vaginam, the uterus was found low down, immediately within the vulvar outlet, and the cervix much enlarged, irregular in form, and tender. The os tincae was sufficiently open to admit the point of the finger, but not

further dilatable on account of the swollen condition of the surrounding tissues.

The vesical wall was dragged down to such a degree as to constitute cystocele when the patient stood erect. The finger, on being withdrawn, was covered with a sanious mucus. The speculum being now introduced, the appearance of the organ was such as might be expected, the cervix fully two and one half inches in diameter, purplish-red, and lobulated. The sound passed to the extent of four inches, and in such a direction as to show some degree of anteversion with slight flexion; but by conjoined manipulation it was evident that the great depth of the uterus was due to the increased size of its cervix, and that there was little or no corporeal hypertrophy.

After a few months' treatment, consisting principally of warm vaginal douches, iodo-glycerine to the cervix, a Hodge's pessary, etc., the uterus improved greatly, and she stopped visiting the out-door department of the hospital for some time.

On January 4, 1872, she applied again for advice, and stated that her former improvement did not continue long.

Her general physical condition was now much changed for the worse, and she had had several attacks of protracted menorrhagia since last seen. The depth of the uterus was four inches, and except that the most gentle introduction of the sound caused hemorrhage from the cervical membrane, the parts presented an appearance very similar to that first observed.

She was advised to come into the hospital for operation, and did so on February 2, 1872, when it was decided to remove the whole cervix close to its vaginal insertion, by galvano-cautery, and subsequently, when the parts would heal, to take away portions of the anterior vaginal wall by Dr. J. C. Nott's clamp *écraseur*.

Operation. — By means of the small cautery-knife a circular fissure was made around the base of the cervix so as to form a bed for the wire loop. The latter was next adjusted

and the part to be removed securely embraced, while *slight* traction was made by means of the vulsellum. (See cut.)

The battery connection being now effected, the loop was *slowly* contracted, so as to occupy not less than eight or ten minutes in passing through, thereby avoiding hemorrhage. When the cervix was lifted out the stump was found to be deeply concave ; and as there was no appearance of blood, neither tampon nor other dressing was applied.

During the three days subsequent to the operation, no special treatment was needed, as the patient felt no inconvenience whatever from what had been done.

About the fourth day — which I find is the rule in such cases — a copious discharge of healthy pus began to flow, and during the ensuing week the vagina was douched twice a day with tepid water and castile soap, and at a later period with a solution of sulphate of zinc and water (3 i. to O. i.). A speculum examination made on the 2d of March (four weeks after operation), showed the parts to be entirely healed, and the surface from which the cervix had been removed, *smooth* and covered with healthy membrane.

March 9. The patient was placed on the table, and anesthetized previous to operating on the anterior wall, as above stated, my friend Dr. Nott and the members of the hospital staff being present, when, to the surprise of all, the following condition of things was observed: *There was no bulging of the vesico-vaginal septum, and the uterus was with difficulty reached by the finger, as if the vaginal canal had been stretched in an upward direction. The uterus was not only elevated, but no reasonable amount of traction by means of a vulsellum could move it from its lofty position.* No further operations being indicated, she was soon after discharged cured.

SINCE the presentation of this paper, the case referred to on page 22 has been made the basis of a suit at law for alleged mal-

practice, the patient estimating her grievances, *i. e.*, the loss of a cancerous cervix, at the modest sum of \$25,000.

It has been suggested by a number of my professional friends that, inasmuch as this case, in its new and peculiar aspect, is one which presents points of great interest to the entire profession, as well as to gynecologists, some brief notice of what has taken place in this particular would be a fitting appendix to the foregoing remarks.

With this view, and though at the eleventh hour, the volume of Transactions being already in press, I addressed a note to my counsel, requesting him to furnish me with a brief epitome of the proceedings.

In reply, the following communication has been received : —

371 FULTON STREET, BROOKLYN, *December 6, 1877.*

DR. JOHN BYRNE :

My dear Sir, — It is impossible to procure a complete report of Mrs. Hopson's case within the time specified. It was tried at our last October Term of the Supreme Court.

No important principle of medical jurisprudence, or the general law of negligence as applied to the duties and obligations of physicians and surgeons, was decided in it, for the reason that the plaintiff closed her case without having furnished any testimony worthy of submission to the jury on a single count of her complaint.

She alleged as cause of action, (1.) Error of diagnosis in treating as malignant a disease of the uterus that which was merely inflammatory and benign ; (2.) Impropriety of treatment in resorting to amputation of the cervix ; (3.) Unskillfulness in performing the operation ; and (4), she alleged, by way of aggravation, and as showing negligence, contraction of the parts and obstruction to the menstrual flow. *The damages claimed were twenty-five thousand dollars.*

Previous to the trial an order was procured for an examination of the plaintiff as a witness before the trial ; and by an order of the court, for that purpose obtained, she also underwent a physical examination.

This was made by Drs. Thomas and Noeggerath, of New York, and Drs. Skene and Ayres, of Brooklyn. These gentlemen were unanimously of opinion that the condition and appearance of the

parts indicated a more than average good result after any such an operation.

They also attended at the trial for the purpose of testifying, had it been necessary. Dr. Peaslee, of New York, had been invited to the examination, but was prevented by professional engagements from attending. He was, however, present at the trial and prepared to testify to the general merit of the operation, and to your professional skill and reputation.

The trial excited considerable public attention and brought to court a large representation of the professions of law and medicine.

Several medical men were examined on behalf of the plaintiff, only one of whom was rash enough to question the accuracy of the diagnosis. His testimony was completely broken down by cross examination. Not one of the plaintiff's witnesses hazarded an opinion adverse to the method of operation; while the only two whose experience gave their views any value, most heartily commended it; and they also added, from practical knowledge of Mrs. Hopson's condition, that such contractions as had occurred are always remediable and do not and cannot contra-indicate a resort to the method of operating adopted. They testified, moreover, that the general appearance of the parts established the great care and skill with which the amputation was done.

On this testimony the plaintiff rested her case. Of course we immediately moved for a nonsuit, and judgment on the merits. The granting of the motion disposed of the case, to be sure, in the manner we desired, but it precluded the introduction of the evidence with which we were prepared by the witnesses already named and others to prove, (1.) That your large experience and known carefulness made an error in diagnosis unlikely, and (2.) That the treatment adopted was best suited to the proved condition of the patient.

The following is the opinion of his honor Judge Gilbert in granting the motion¹:—

"I have given this matter much consideration, and, while on one hand the public has great interest in enforcing a proper discharge of professional duties, on the other hand it is the duty of courts to protect professional men from unfounded charges of malpractice, or neglect of professional duty. In this case the charge was, that the defendants performed an operation for cancer

¹ Extract from report of trial as published in the *Brooklyn Eagle*.

where it did not exist. That was the only charge in the complaint. There was no allegation that the defendants improperly abandoned the patient, or adopted any improper mode of operation.

"The question is, whether the charge of malpractice, the performing of an operation where there was no occasion for it, has been sufficiently made out to go to a jury. My opinion is that it has not been, and I should be lacking in my duty did I submit to the jury the question whether these defendants were guilty of negligence when there was no proof of it.

"Dr. Strew, who had attended the plaintiff for years, and knew her constitutional traits, said that she did not suffer from cancer; but further on in his testimony he said that no man could determine, with certainty, whether a patient had manifested symptoms of cancer until the patient died.

"I do not think I ought to give much weight to Dr. Strew's testimony, when it was opposed to the testimony of all the other medical witnesses whom the plaintiff placed upon the stand. It would involve great injustice to professional men if they were bound on every occasion where they removed a tumor to prove that it was a cancerous one. The only question in my mind is, as to whether, in view of the fact that the plaintiff could furnish no witnesses to prove that it was not a cancer, these defendants might not be put on the stand, that the nature of the tumor might be proved by them.

"It would be an unfair rule, however, where respectable and competent physicians were concerned, to indulge a presumption of negligence as on this particular occasion.

"The motion for nonsuit must be granted."

Very truly yours,

JNO. C. MCGUIRE.



